Prospective Randomized Evaluation of the Denali and Option Inferior Vena Cava Filters

ODEN Trial: Option vs. Denali IVC Filters

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IRB Approved Application/Protocol Version 1.4: March 23, 2015

Study Application (Version 1.4)

1.0 General Information

***Enter the full title of your study:**

Prospective Randomized Evaluation of the Denali and Option Inferior Vena Cava Filters

***Enter the study number or study alias**

Option and Denali
* This field allows you to enter an abbreviated version of the Study Title to quickly identify this study.

2.0 Add Department(s)

2.1 List the departments associated with this study. The Principal Investigator's department should be Primary.:

Primary Dept?	Department Name
◈	**UCSF** - *147100* - M_Radiology

3.0 List the key study personnel: (Note: external and affiliated collaborators who are not in the UCSF directory can be identified later in the Qualifications of Key Study Personnel section at the end of the form)

3.1 *Please add a Principal Investigator for the study:

Kohi, Maureen P

Select if applicable

☐ Department Chair ☐ Resident

☐ Fellow

If the Principal Investigator is a Fellow, the name of the Faculty Advisor must be supplied below.

3.2 If applicable, please select the Research Staff personnel:

A) Additional Investigators

Avrin, David
Other Investigator
Fidelman, Nicholas
Other Investigator
Johanson, Curt A
Medical Monitor
Kerlan, Robert
Other Investigator

Kolli, Kanti P
Other Investigator
Laberge, Jeanne M
Other Investigator
Olorunsola, Olufoladare G
Other Investigator
Patel, Anand S, MD
Other Investigator
Taylor, Andrew G
Other Investigator
Tong, Ricky
Other Investigator
Tran, David N
Other Investigator

B) Research Support Staff

3.3 *Please add a Study Contact:

Johanson, Curt A
Kohi, Maureen P

The Study Contact(s) will receive all important system notifications along with the Principal Investigator. (e.g. The project contact(s) are typically either the Study Coordinator or the Principal Investigator themselves).

3.4 If applicable, please add a Faculty Advisor/Mentor:

3.5 If applicable, please select the Designated Department Approval(s):

Add the name of the individual authorized to approve and sign off on this protocol from your Department (e.g. the Department Chair or Dean).

4.0 Qualifications of Key Study Personnel

4.1 November, 2015 - NEW Definition of Key Study Personnel and CITI Training Requirements:

UCSF Key Study Personnel include the Principal Investigator, other investigators and research personnel who are directly involved in conducting research with study participants or who are directly involved in using study participants' identifiable private information during the course of the research. Key Personnel also include faculty mentors/advisors who provide direct oversight to Postdoctoral Fellows, Residents and Clinical Fellows serving as PI on the IRB application. **The IRB requires that all Key Study Personnel complete Human Subjects Protection Training through CITI prior to approval of a new study, or a modification in which KSP are being added. More information on the CITI training requirement can be found on our website.**

List the study responsibilities and qualifications of any individuals who qualify as Key Study Personnel (KSP) at UCSF and affiliated sites ONLY by clicking the "Add a new row" button. This information is required and your application will be considered incomplete without it.

	Description of Study	

KSP Name	Responsibilities	Qualifications
Kohi, Maureen P	Consent patients, perform procedure, review images	Interventional Radiology Attending
Johanson, Curt	Contact patients, consent patients, organize data	Clinical Research Coordinator
Fidelman, Nicholas	Consent patients, perform procedure, review images	Interventional Radiology Attending
Kerlan, Robert	Consent patients, perform procedure, review images.	Interventional Radiology Attending
Kolli, Kanti P	Consent patients, perform procedure, review images	Interventional Radiology Attending
Laberge, Jeanne M	Consent patients, perform procedure, review images	Interventional Radiology Attending
Taylor, Andrew G	Consent patients, perform procedure, review images	Interventional Radiology Attending
Olorunsola, Olufoladare G	Consent patients, perform procedure, review images	Interventional Radiology Fellow
Patel, Anand S, MD	Consent patients, perform procedure, review images	Interventional Radiology Fellow
Tong, Ricky	Consent patients, perform procedure, review images	Interventional Radiology Fellow
Tran, David N	Consent patients, perform procedure, review images	Interventional Radiology Fellow
Avrin, David	Consent patients, perform procedure, review images.	Interventional Radiology Attending

5.0 Initial Screening Questions - Updated 9/13

(Note: You must answer every question on this page to proceed.)
If you are converting to the new form, check questions 5.4, 5.6, 5.7, 5.8, and 5.10 before saving and continuing to the next section.

5.1 * Application type:

- (•) Full Committee
- ( ) Expedited
- ( ) Exempt

5.2 * Risk level (Help Text updated 9/13):

- ( ) Minimal risk
- (•) Greater than minimal risk

5.3 * Subject contact:

- (•) Yes (including phone, email or web contact)

○ No (limited to medical records review, biological specimen analysis, and/or data analysis)

5.4 * Funding (past or present):

○ Funded or will be funded (external sponsor, gift, program or specific internal or departmental funds)
◉ Unfunded (no specific funds earmarked for this project)
○ Unfunded student project

5.5 * The Principal Investigator and/or one or more of the key study personnel has financial interests related to this study:

○ Yes ◉ No

If **Yes**, the Conflict of Interest Advisory Committee (COIAC) office may contact you for additional information.

5.6 * This is an investigator-initiated study:

◉ Yes ○ No

5.7 * This study ONLY involves retrospective records review and/or identifiable biospecimen analysis:

○ Yes ◉ No

5.8 * This is a clinical trial:

◉ Yes ○ No

Clinical Trial Registration
"NCT" number for this trial:

5.9 * This is a multicenter study:

○ Yes ◉ No

5.10 * This application involves the study of unapproved or approved drugs, devices, biologics or in vitro diagnostics:

◉ Yes ○ No

5.11 * This application involves a Humanitarian Use Device:

◉ No
○ Yes, and it includes a research component
○ Yes, and it involves clinical care ONLY

5.12 * This study involves human stem cells (including iPS cells and adult stem cells), gametes or embryos:

◉ No
○ Yes, and requires CHR and GESCR review

○ Yes, and requires GESCR review, but NOT CHR review

5.13 * This is a CIRB study (e.g. the NCI CIRB will be the IRB of record):

○ Yes ◉ No

5.14 * This application includes a request to rely on another IRB (other than NCI CIRB):

○ Yes ◉ No

Note: If this request is approved, the CHR will **NOT** review and approve this study. Another institution will be the IRB of record.

6.0 Sites

6.1 Institutions (check all that apply):

- ☑ UCSF
- ☐ China Basin
- ☐ Helen Diller Family Comprehensive Cancer Center
- ☑ Mission Bay
- ☑ Mount Zion
- ☐ San Francisco General Hospital (SFGH)
- ☐ SF VA Medical Center (SF VAMC)
- ☐ Blood Centers of the Pacific (BCP)
- ☐ Blood Systems Research Institute (BSRI)
- ☐ Fresno (Community Medical Center)
- ☐ Gallo
- ☐ Gladstone
- ☐ Institute on Aging (IOA)
- ☐ Jewish Home
- ☐ SF Dept of Public Health (DPH)

6.2 Check all the other types of sites not affiliated with UCSF with which you are cooperating or collaborating on this project (Help Text updated 9/13):

- ☐ Other UC Campus
- ☐ Other institution
- ☐ Other community-based site
- ☐ Foreign Country

List the foreign country/ies:

6.3 Check any research programs this study is associated with:

- ☐ Cancer Center
- ☐ Center for AIDS Prevention Sciences (CAPS)
- ☐ Global Health Sciences
- ☐ Immune Tolerance Network (ITN)
- ☐ Neurosciences Clinical Research Unit (NCRU)
- ☐ Osher Center

☐ Positive Health Program

7.0 Study Design

7.1 * Study design (Help Text updated 9/13):

This is a prospective, randomized trial comparing two FDA-approved inferior vena cava filters, the Denali retrievable IVC filter (Bard Peripheral Vascular Inc., Tempe, AZ) and the Option Elite (Argon Medical, Athens, Texas).

Patients scheduled for IVC filter placement at UCSF Department of Interventional Radiology (IR) will be asked by the IR physician at either UCSF Mt. Zion, Moffitt or the new Mission Bay hospital if they wish to participate in this prospective, randomized study. Recruitment will be conducted by the physicians performing the IR procedures only. No additional recruitment calls, emails, posters or web pages are necessary. All procedures and the randomization to one of the two experimental groups will be carefully explained before obtaining and having participant signed written consent.

Screening:
Screening will be conducted by the IR physician prior to the placement of the IVC filters. Since this is a standard of care study, patients who are recommended for IVC filter placement and are scheduled for the procedure are generally eligible.

The screening procedures are part of routine care before IVC filter placement and would be done even if patients did not join the study.

The study doctor will review the results of most recent routine care imaging scans (CT or MRI) of the abdomen and pelvis. This is done to confirm that the diameter of IVC is no wider than 2.8cm. Both filters are FDA-approved to be placed in an IVC with maximal diameter of 2.8cm.

The study doctor will also review ultrasound of the lower extremity, when available, to confirm that a blood clot was in fact present prior to performing the study. This ensures that patients who present for IVC filter placement are screened properly.

The following screening procedures should be done within 12 days before the IVC filter placement procedure as part of the standard of care.

- A complete physical exam
- The study doctor will ask about medical history and how well patient is able to do daily activities
- Routine care blood tests (about 2 tablespoons)
  - This is to ensure that the INR and platelet count of the patient is within the safe limits to perform an invasive procedure.

After Enrollment:
If the screening procedures show that the patient is eligible and consents to take part in the study, IVC filter placement will occur after randomization.

After enrollment, the following procedures will be done during the study: Just as with screening, all of these procedures are part of regular IVC filter placement care.

Randomization:
Randomization will occur on the day of procedure or prior clinic visit with IR physician to either the Denali or Option IVC filter. All IR attending physicians on the protocol are familiar with placement of either filter type. Prior to opening study to accrual, 75 sealed security envelopes with the word Denali printed on a card inside and 75 sealed security envelopes with the word Option will be assembled by IR staff not involved in the research. The envelopes will be mixed up and placed in a bag. Computerized randomization programs and tables were considered but we feel the envelopes will work best as there may be limited time after patient is consented and procedure begins. This is especially true as some filters are placed emergently. Previous IR studies have used this randomization technique with great success.

Filter Placement:
Placement of an IVC filter involves the insertion of a plastic tube (catheter) into a vein in the neck. Some numbing medicine (Lidocaine) will be injected in the skin over the vein before the catheter is inserted. Intravenous medications will be given to induce moderate sedation (Fentanyl for analgesic and Versed for moderate sedation). Once the catheter has been placed into the vein, it will be advanced into the IVC. Once in correct position, x-ray contrast material (x-ray dye-Omnipaqe 350) will be injected through the catheter and x-ray pictures taken. A series of x-ray pictures will be obtained of the IVC. These pictures are taken as part of standard of care to determine the position of the renal veins with respect to the IVC. The

top of the filter must sit below the renal veins so it doesn't cause obstruction of the renal veins. In addition, pictures of the IVC are taken to serve as another tool in measuring the diameter of the IVC to make sure the diameter of the IVC is less than 2.8cm. This is particularly important in situations when a CT or MRI of the abdomen and pelvis is not available to have reviewed prior to the procedure. Once pictures are obtained and it is made certain that the IVC diameter is less than 2.8cm, the filter will be inserted through the catheter, and placed below the renal veins. During the placement procedure, positioning of the filter will be monitored with x-ray pictures. At the completion of the procedure the catheter will be removed and pressure will be applied to the insertion site until the bleeding has stopped. All of this is part of routine standard of care for placement of the filter. The doctor performing the procedure will be asked to complete a short questionnaire after IVC filter placement which will be attached to "Study Documents".

Follow-Up:
After the IVC filter placement procedure patient status will be followed by the interventional radiology doctors.

Per standard of care after IVC filter placement, patient will be monitored in the hospital for up to 1 hour after the procedure. If patient is in stable condition and sedation has resolved, they will return home the same day or returned to their hospital rooms.

A tentative appointment for follow up and filter retrieval will be ordered by IR physician at time of filter placement in APEX. This will ensure that scheduling and study staff will be aware that further patient and primary care follow-up is required.

Patient primary care physician and/or relevant medical staff will be telephoned one month after IVC filter placement to determine if patient is medically stable and suitable for IVC filter removal.

If IR and other doctors agree that IVC filter removal is recommended, patient will be scheduled to return for follow-up imaging and filter retrieval. If patient is not medically stable or still at high risk for blood clots, we will attempt to schedule a follow up one month later. Close contact with primary physician and patient will be maintained to ensure that filter is removed as soon as possible. APEX scheduling will be used to make sure follow up is performed at regular intervals.

At follow-up appointment these routine tests per standard of care before IVC filter removal will be performed:

- A physical exam
- The study doctor will ask about medical history, how well patient is able to do daily activities, and if they are experiencing any possible symptoms related to the IVC filter placement such as abdominal or back pain.
- A rotation CT focused to the site of the filter will be performed as part of routine practice of filter removal. This is done to ensure the filter has not migrated or that the filter has not penetrated through the walls of the IVC such that filter retrieval would be unsafe.
- IR physician will determine if patient status is stable and safe for IVC filter removal. If not, physician will discuss with primary care doctor if filter needs to remain permanently in patient or if later retrieval should be considered at subsequent follow up visits.
- IVC filter retrieval will be performed under moderate sedation. This procedure is very similar in nature to the filter placement procedure. The IVC filter is removed via a similar process to the way in which it was placed. X-ray dye (contrast) will be injected around the filter to assure that the filter and the area beneath the filter are free of blood clots and that it is safe to proceed with removal. A catheter-based snare will be used to engage the hook at the end of the filter and the filter will then be enveloped by a removal sheath and removed from the body.

Imaging Analysis:
Single blind CT and x-ray imaging analysis will be conducted by a trained radiologist doctor using standard imaging tools and workstations (Agfa PACS V.6). The radiologist will be unaware which patient received which filter type to minimize any potential bias in searching for IVC filter complications.
The radiologist will be instructed to look for the following complications of the IVC filter per Society of Interventional Radiation (SIR) guidelines:

- Filter penetration as defined by more then 3mm penetration of IVC wall by one or more components of the IVC filter
    - Also look for signs that other organs or spine were penetrated
- Filter tilt as defined by greater than 15 degrees tilt perpendicular to axis of IVC
- Filter migration as defined by more than 1 cm from initial filter location
- Filter thrombus as defined by clot formed in filter mesh
- Filter fracture as defined by breakage of one or more of filter components

Statistics will be compiled and analysis will be performed by statistician using SPSS software.

Statistical and Power Analysis

IVC filter penetration (defined as greater than 3mm) through the IVC wall be the primary complication we will be measuring.

For sample size, we determined that with ~75 patients per group and similar differences in incidence or penetration as our preliminary study (25) (22% & 10%) we will see a significant difference at the p = 0.05 level with power 80%. If the difference is a little wider (25% vs. 10%) we will see significance at 50 patients per group. This calculation is using a comparison of proportions test with a z-statistic.

A correlation test will be performed as well as a survival analysis where a failure is penetration. This would give two curves from time of insertion to time of CT scan showing penetration. The log rank statistic would look at comparisons over time.

Finally, we will also do an analysis of struts counting penetration as one or more and use the total number of penetrating struts as a secondary analysis.

7.2 If this is a clinical trial, check the applicable phase(s) (Help Text updated 9/13):

- ☐ Phase I
- ☐ Phase II
- ☐ Phase III
- ☑ Phase IV

8.0 Scientific Considerations

8.1 Hypothesis (Help Text updated 9/13):

This study has a hypothesis:

◉ Yes ○ No

If yes, state the hypothesis or hypotheses:

We hypothesize that there is no significant difference in efficacy and complication rate between the Option and the Denali filter.

8.2 * List the specific aims:

1) Determine if there is any difference in filter tilt in the vena cava
2) Determine if there is any difference in caval penetration
3) Determine if there is any difference in physician satisfaction after filter deployment

8.3 Statistical analysis:

Statistical and Power Analysis

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Finally, we will also do an analysis of struts counting penetration as one or more and use the total number of penetrating struts as a secondary analysis.

8.4 If this study has undergone scientific or scholarly review, please indicate which entity performed the review:

- ☐ Cancer Center Protocol Review Committee (PRC) (Full approval is required prior to final CHR approval for cancer-related protocols.)
- ☐ CTSI Clinical Research Center (CRC) advisory committee
- ☑ Departmental scientific review
- ☐ Other:

Specify **Other**:

9.0 Background

9.1 Background:

Background

The purpose of inferior vena cava (IVC) filters is preventing pulmonary embolism (PE) for patients with thromboembolic disease when standard medical therapy fails or is contraindicated (1). The most common situations for which IVC filters are used are in patients with deep vein thrombosis (DVT) or PE. Although anti-coagulation therapy is the preferred choice of prophylaxis in the setting of thromboembolic disease, many patients cannot take anticoagulants or continue to experience thromboembolism despite anticoagulation. Examples of when patients are considered for IVC filter placement include patients who have had a recent stroke, gastrointestinal bleeding, following severe trauma, and before and after surgery.

First approved for use in the late 1960's and 1970's, IVC filters were initially thought to be safe to leave in patients for life. More recent research and a flurry of lawsuits have shown that permanent placement of IVC filters can lead to a host of known and unknown side effects and complications. The society of interventional radiology (SIR) and the US Food and Drug Association now recommend retrieval of IVC filters as soon as patient's risk for embolism has subsided and when feasible and clinically indicated.

Potential complications of IVC filters include filter fracture, filter migration, and caval thrombosis (2–6). Additionally, filter components may penetrate through the wall of the IVC. This is most commonly seen with conical filters, with reported incidences varying widely by filter type (7–11). The likelihood of these complications also seems to increase over time. Therefore removal should happen as soon as clinically safe.

Use of IVC filters became commonplace after the general clinical belief in their relative safety and efficacy in preventing PE. (28–32). The advent of retrievable IVC filters has further contributed to this trend. Some filters, including the Option and Denali, are FDA approved for safety and efficacy as retrievable filters, or as permanent devices if left in place. Despite these approvals there is a relatively limited understanding of the way IVC filters behave after they are inserted (33, 34).

One type of behavior with potential clinical significance is the interaction between IVC filters and the vena cava over time. A commonly encountered result of this interaction is vena caval perforation by filter components. Filter fragmentation, filter tilt, or complete filter migration can also occur (35–39). Filter fragmentation or migration can place a patient at considerable risk, however, the clinical significance of IVC perforation continues to be debated. There are scattered reports of patients manifesting symptoms such as pancreatitis, severe back and abdominal pain that resolved after filter removal. Unfortunately, large scale analysis connecting IVC filter complication with symptoms has been lacking in the literature.

Accurate characterization of filter-caval interactions in the clinical setting is essential for valid inferences to be drawn regarding IVC filter behavior over time. Abdominal CT imaging and fluoroscopic venography are common modalities used to visualize IVC filters; however, the information gathered through fluoroscopic venography is limited relative to CT imaging. In contrast, abdominal CT reveals IVC filter position and caval thrombus, as well as showing the vena caval lumen, wall and pericaval tissues. Diagnostic

radiologists can play a vital role when viewing Abdominal CT in identifying filter-related issues that may require specialized management.

The purpose of the present study is to characterize the incidence, time-course, and magnitude of complications of two commonly used IVC filters. Patients who present to Interventional Radiology for IVC filter will be randomized to have either a Denali filter or an Option filter placed. Patients will then be contacted 30-days following filter placement to come for filter removal. If it is not clinically safe for a patient to have the filter removed after 30 days, other attempts will be made to schedule for filter removal at 30-day intervals until the filter is removed. The filter placement and filter removal will be performed in the usual fashion according to the standards of our current practice. Upon filter removal, note will be made to potential complications including: filter perforation, filter migration, filter fracture and thrombus within the filter. Another main purpose of the study is to try to increase the numbers of patients who return promptly for filter removal. Many patients continue to have IVC filters in place for far longer than is needed due to poor follow up procedures and lack of tracking due to many patients being referred in from other services.

Little is presently known regarding the complication tendency of the relatively new Denali conical retrievable IVC filter (Cook, Bloomington, Indiana).The Option has been researched more and has been found to have a slightly lower incidence of complications than other conical filters.

In a prospective multicenter study of 100 Option filters, investigators noted one case of penetration among 39 filters assessed during retrieval cavograms (12); however, penetration was not dealt with as a dedicated endpoint. The option studies also did not randomize what filter was used and the data was only examined retrospectively with varying timepoints. The Denali was approved under an FDA "similar device" exemption so has not been subject to systematic long term study. The present study aims to characterize the incidence and time course of penetration and other complications at regular intervals for the Option filter compared with the Denali.

9.2 Preliminary studies:

The department of interventional radiology at UCSF has recently conducted retrospective comparative studies of IVC filter complications, comparing two devices in two separate studies. This research has inspired us to propose a randomized prospective trial to more clearly evaluate the efficacy of two newer IVC filters.

In a comparison between the Option and Gunther Tulip IVC filters, vena cava penetration by one or more strut was found in 17% of all filters imaged by CT. (25) The filter positions of 58 devices were documented on follow up CT examinations for reasons unrelated to filter placement. There was a 10% prevalence of penetration for the Option and 22% for the Gunther Tulip. Due to the small number of filters imaged in each group, no significant statistical difference in prevalence of filter penetration was found. A secondary analysis determined that Gunther Tulip filters showed time-dependent penetration with penetration become more probable with longer indwelling times of the devices.

Since this study was only a retrospective chart review study, patients were not randomized to each group and therefore it was not possible to get large enough numbers in each group. Also patients were not asked to come back at regular intervals for follow up imaging so any subsequent CT images were obtained for other purposes. The present study will improve on this by having larger numbers of randomized patients in each group and routine standard of care follow up imaging at regular intervals until filter removal.

Our department conducted another similar study comparing Gunther Tulip and Celect IVC filters (26). 50 filters (23 Gunther Tulip and 27 Celect) were assessed through retrospective analysis of follow up abdominal CT images obtained for unrelated reasons. The principal significant finding was that the longer the duration of IVC filter placement, the more likely that filter penetration would occur. Perforation through the IVC was observed in 43 out of 50 (86%) filters on CT scans obtained between 1 and 880 days after filter placement. The study also found that there was filter tilt (defined as greater than 15 degrees) in 20 out of 50 filters. Removal of 12 out of 50 filters was attempted and was successful in 11 of 12.

The present study seeks to expand on this as well by taking into account other factors such as filter tilt, filter breakage, penetration into other organs and retrieval success.

9.3 References:

References
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If you have a separate bibliography, attach it to the submission with your other study documents.

10.0 Sample Size and Eligibility

10.1 Number of subjects that will be enrolled at UCSF and affiliated institutions:

150

10.2 Total number of subjects that will be enrolled at all sites (Help Text updated 9/13):

150

10.3 Estimated number of people that you will need to consent and screen here (but not necessarily enroll) to get the needed subjects:

300

10.4 Explain how and why the number of subjects was chosen (Help Text updated 9/13):

The numbers are based on statistical power analysis and examination of our findings from previous IVC filter retrospective studies done by UCSF interventional radiology. The most recent study showed that one group of filters had 22% penetration and the other had 10% penetration. However, because the numbers in each group were too small, no significant difference in degree of penetration was found. For sample size, we determined that with ~75 patients per group and similar differences in incidence or penetration as our preliminary study (25) (22% & 10%) we will see a significant difference at the p = 0.05 level with power 80%. If the difference is a little wider (25% vs. 10%) we will see significance at 50 patients per group. This calculation is using a comparison of proportions test with a z-statistic.

To make sure this will be feasible, we looked at the total number of IVC filters placed in the previous year at UCSF Mount Zion and UCSF Parnassus. In 2013, 169 IVC filters were placed in patients between the two hospitals. Since this is a standard of care study and no extra time committment will be required, we expect most patients will be consented and agree to be followed in the study. Over a two year proposed study timeline with on average 340 patients receiving IVC filters, we expect to consent about 300 patients in order to get the 100-150 needed to find signifcant findings. We expect half of the 300 consented patients to be lost to follow up and not return for follow up imaging and retrieval.

10.5 * Eligible age range(s):

- [ ] 0-6 years
- [ ] 7-12 years
- [ ] 13-17 years
- [x] 18+ years

10.6 Inclusion criteria:

1. Patients scheduled for IVC filter placement at UCSF Moffitt, Mount Zion, or Mission Bay Interventional Radiology Service.

2. 18+

10.7 Exclusion criteria:

1. Necessity of permanent IVC filter

2. Genetic or physical abnormalities of the inferior vena cava

3. Circumstances that in the opinion of the primary investigator, patient would be a poor candidate either due to complications in medical condition or lack of ability for follow up. (I.E. PI discretion)

10.8 There are inclusion or exclusion criteria based on gender, race or ethnicity:

○ Yes ◉ No

If **yes**, please explain the nature and rationale for the restrictions:

11.0 Drugs and Devices

11.1 * Investigational drugs or biologics will be used OR approved drugs or biologics will be studied under this application:

○ Yes ◉ No

11.2 * Investigational medical devices or in vitro diagnostics will be used OR approved medical devices or in vitro diagnostics will be studied under this application:

◉ Yes ○ No

11.3 * A Non-Significant Risk (NSR) determination is being requested for an investigational device:

○ Yes ◉ No

11.4 Verification of IND/IDE numbers: If the sponsor's protocol does not list the IND/IDE number, you must submit documentation from the sponsor or FDA identifying the IND/IDE number for this study. Attach this documentation in the Other Study Documents section of the Initial Review Submission Packet.

12.0 Study Device Details

12.1 List the medical devices or in vitro diagnostics to be studied or used and attach any FDA or sponsor correspondence relating to the device to the application in the Study Documents section: (Note: Device category descriptions added to the Help link December, 2014)

View Details	Device Name	Is the Device FDA Approved	Is this a new device or a new use of an already	IDE Number

			approved device	
⊟	Option Elite IVC FIlter	Yes	No	

Manufacturer/Supplier of Device	Argon
Medicare Category	☐ A ☐ B
Where will the Devices Be Stored	
Will Devices be supplied at no Cost	No
Is this a HUD (HDE)	No
HDE Number	
Is the Device FDA Approved	Yes
Is this a new device or a new use of an already approved device	No
Is an IDE necessary	No
IDE Number	
Who holds the IDE	N/A
IDE Details	
In the opinion of the sponsor, select the level of risk associated with this device	No Significant Risk

⊟	Denali IVC Filter	Yes	No	

Manufacturer/Supplier of Device	Bard
Medicare Category	☐ A ☐ B
Where will the Devices Be Stored	Interventional Radiology
Will Devices be supplied at no Cost	No
Is this a HUD (HDE)	No
HDE Number	
Is the Device FDA Approved	Yes
Is this a new device or a new use of an already approved device	No
Is an IDE necessary	No
IDE Number	
Who holds the IDE	N/A
IDE Details	
In the opinion of the sponsor, select the level of risk associated with this device	No Significant Risk

13.0 Other Approvals and Registrations

13.1 * Do any study activities take place on patient care units:

◉ Yes ○ No

If **Yes**, attach a letter of support for the study from the involved patient care manager(s).

13.2 * Does your protocol involve any radiation exposure to patients/subjects? The UCSF Radiation

Safety Committee requires review of your protocol if it includes administration of radiation as part of standard of care OR research exposures:

(•) Yes ( ) No

13.3 * **This study may generate genetic data that may be broadly shared (e.g. submitted to NIH for Genome-Wide Association Studies (GWAS) in dbGaP, TCGA, etc):**

( ) Yes (•) No

13.4 * **This study involves administration of vaccines produced using recombinant DNA technologies to human subjects:**

( ) Yes (•) No

13.5 * **This study involves human gene transfer (NOTE: Requires NIH Recombinant DNA Advisory Committee (RAC) review prior to CHR approval):**

( ) Yes (•) No

13.6 This study involves other regulated materials and requires approval and/or authorization from the following regulatory committees:

☐ Institutional Biological Safety Committee (IBC)

Specify BUA #:

☐ Institutional Animal Care and Use Committee (IACUC)

Specify IACUC #:

☑ Radiation Safety Committee

Specify RUA #:

☐ Radioactive Drug Research Committee (RDRC)

Specify RDRC #:

☐ Controlled Substances

14.0 Procedures

14.1 * **Procedures/Methods (Help Text updated 9/13) For clinical research list all study procedures, test and treatments required for this study, including when and how often they will be performed. If there are no clinical procedures, describe the Methods:**

This is a prospective, randomized trial comparing two FDA-approved inferior vena cava filters, the Denali retrievable IVC filter (Bard Peripheral Vascular Inc., Tempe, AZ) and the Option Elite (Argon Medical, Athens, Texas).

Patients scheduled for IVC filter placement at UCSF Department of Interventional Radiology (IR) will be asked by the IR physician performing the procedure at either UCSF Mt. Zion, Moffitt Bay or Moffitt hospital if they wish to participate in this observational study. Recruitment will be conducted by the physicians

performing the IR procedures only. No additional recruitment calls, emails, posters or web pages are necessary. All procedures and the randomization to one of the two experimental groups will be carefully explained before obtaining signed written consent.

Screening:
Screening will be conducted by the IR physician prior to the placement of the IVC filters. Since this is a standard of care study, patients who are recommended for IVC filter placement and are scheduled for the procedure are generally eligible.

The screening procedures are part of routine care before IVC filter placement and would be done even if patients did not join the study.

The study doctor will review the results of most recent routine care imaging scans (CT or MRI) of the abdomen and pelvis. This is done to confirm that the diameter of IVC is no wider than 2.8cm. Both filters are FDA-approved to be placed in an IVC with maximal diameter of 2.8cm.

The study doctor will also review ultrasound of the lower extremity, when available, to confirm that a blood clot was in fact present prior to performing the study. This ensures that patients who present for IVC filter placement are screened properly.

The following screening procedures should be done within 12 days before the IVC filter placement procedure as part of the standard of care.

- A complete physical exam
- The study doctor will ask about medical history and how well patient is able to do daily activities
- Routine care blood tests (about 2 tablespoons)
  - This is to ensure that the INR and platelet count of the patient is within the safe limits to perform an invasive procedure.

After Enrollment:
If the screening procedures show that the patient is eligible and consents to take part in the study, IVC filter placement will occur after randomization.

After enrollment, the following procedures will be done during the study: Just as with screening, all of these procedures are part of regular IVC filter placement care.

Randomization:
Randomization will occur on the day of procedure or prior clinic visit with IR physician to either the Denali or Option IVC filter. All IR attending physicians on the protocol are familiar with placement of either filter type. Prior to opening study to accrual, 75 sealed security envelopes with the word Denali printed on a card inside and 75 sealed security envelopes with the word Option will be assembled by IR staff not involved in the research. The envelopes will be mixed up and placed in a bag. Computerized randomization programs and tables were considered but we feel the envelopes will work best as there may be limited time after patient is consented and procedure begins. This is especially true as some filters are placed emergently. Previous IR studies have used this randomization technique with great success.

Filter Placement:
Placement of an IVC filter involves the insertion of a plastic tube (catheter) into a vein in the neck. Some numbing medicine (Lidocaine) will be injected in the skin over the vein before the catheter is inserted. Intravenous medications will be given to induce moderate sedation (Fentanyl for analgesic and Versed for moderate sedation). Once the catheter has been placed into the vein, it will be advanced into the IVC. Once in correct position, x-ray contrast material (x-ray dye-Omnipaqe 350) will be injected through the catheter and x-ray pictures taken. A series of x-ray pictures will be obtained of the IVC. These pictures are taken as part of standard of care to determine the position of the renal veins with respect to the IVC. The top of the filter must sit below the renal veins so it doesn't cause obstruction of the renal veins. In addition, pictures of the IVC are taken to serve as another tool in measuring the diameter of the IVC to make sure the diameter of the IVC is less than 2.8cm. This is particularly important in situations when a CT or MRI of the abdomen and pelvis is not available to have reviewed prior to the procedure. Once pictures are obtained and it is made certain that the IVC diameter is less than 2.8cm, the filter will be inserted through the catheter, and placed below the renal veins. During the placement procedure, positioning of the filter will be monitored with x-ray pictures. At the completion of the procedure the catheter will be removed and pressure will be applied to the insertion site until the bleeding has stopped. All of this is part of routine standard of care for placement of the filter. The doctor performing the procedure will be asked to complete a short questionnaire after IVC filter placement which will be attached to "Study Documents".

Follow-Up:
After the IVC filter placement procedure patient status will be followed by the interventional radiology doctors.

Per standard of care after IVC filter placement, patient will be monitored in the hospital for up to 1 hour after the procedure. If patient is in stable condition and sedation has resolved, they will return home the same day or returned to their hospital rooms.

A tentative appointment for follow up and filter retrieval will be ordered by IR physician at time of filter placement in APEX. This will ensure that scheduling and study staff will be aware that further patient and primary care follow-up is required.

Patient primary care physician and/or relevant medical staff will be telephoned one month after IVC filter placement to determine if patient is medically stable and suitable for IVC filter removal.

If IR and other doctors agree that IVC filter removal is recommended, patient will be scheduled to return for follow-up imaging and filter retrieval. If patient is not medically stable or still at high risk for blood clots, we will attempt to schedule a follow up one month later. Close contact with primary physician and patient will be maintained to ensure that filter is removed as soon as possible. APEX scheduling will be used to make sure follow up is performed at regular intervals.

At follow-up appointment these routine tests per standard of care before IVC filter removal will be performed:

- A physical exam
- The study doctor will ask about medical history, how well patient is able to do daily activities, and if they are experiencing any possible symptoms related to the IVC filter placement such as abdominal or back pain.
- A rotation CT focused to the site of the filter will be performed as part of routine practice of filter removal. This is done to ensure the filter has not migrated or that the filter has not penetrated through the walls of the IVC such that filter retrieval would be unsafe.
- IR physician will determine if patient status is stable and safe for IVC filter removal. If not, physician will discuss with primary care doctor if filter needs to remain permanently in patient or if later retrieval should be considered at subsequent follow up visits.
- IVC filter retrieval will be performed under moderate sedation. This procedure is very similar in nature to the filter placement procedure. The IVC filter is removed via a similar process to the way in which it was placed. X-ray dye (contrast) will be injected around the filter to assure that the filter and the area beneath the filter are free of blood clots and that it is safe to proceed with removal. A catheter-based snare will be used to engage the hook at the end of the filter and the filter will then be enveloped by a removal sheath and removed from the body.

Imaging Analysis:
Single blind CT and x-ray imaging analysis will be conducted by a trained radiologist doctor using standard imaging tools and workstations (Agfa PACS V.6). The radiologist will be unaware which patient received which filter type to minimize any potential bias in searching for IVC filter complications.
The radiologist will be instructed to look for the following complications of the IVC filter per Society of Interventional Radiation (SIR) guidelines:

- Filter penetration as defined by more then 3mm penetration of IVC wall by one or more components of the IVC filter
    - Also look for signs that other organs or spine were penetrated
- Filter tilt as defined by greater than 15 degrees tilt perpendicular to axis of IVC
- Filter migration as defined by more than 1 cm from initial filter location
- Filter thrombus as defined by clot formed in filter mesh
- Filter fracture as defined by breakage of one or more of filter components

Statistics will be compiled and analysis will be performed by statistician using SPSS software.

Statistical and Power Analysis

IVC filter penetration (defined as greater than 3mm) through the IVC wall be the primary complication we will be measuring.

For sample size, we determined that with ~75 patients per group and similar differences in incidence or penetration as our preliminary study (25) (22% & 10%) we will see a significant difference at the $p = 0.05$ level with power 80%. If the difference is a little wider (25% vs. 10%) we will see significance at 50 patients per group. This calculation is using a comparison of proportions test with a z-statistic.

A correlation test will be performed as well as a survival analysis where a failure is penetration. This would give two curves from time of insertion to time of CT scan showing penetration. The log rank statistic would look at comparisons over time.

Finally, we will also do an analysis of struts counting penetration as one or more and use the total number of penetrating struts as a secondary analysis.

If you have a procedure table, attach it to the submission with your other study documents.

14.2 Interviews, questionnaires, and/or surveys will be administered or focus groups will be conducted:

(•) Yes ( ) No

List any standard instruments used for this study:

Questionnaire given to IR docs after filter placement

Attach any non-standard instruments at the end of the application.

14.3 Conduct of study procedures or tests off-site by non-UCSF personnel:

( ) Yes (•) No

If yes, explain:

14.4 Sharing of experimental research test results with subjects or their care providers:

( ) Yes (•) No

If yes, explain:

14.5 * Specimen collection for future research and/or specimen repository/bank administration:

( ) Yes (•) No

14.6 Time commitment (per visit and in total):

The total time commitment per subject would be the same as for any standard of care IVC filter patient. No additional study visits outside of IVC filter placement, retrieval and imaging are necessary. There may be brief follow up telephone calls by IR reception staff and research coordinators which will be minimal and only done for follow up and continuity of care.

14.7 Locations:

UCSF Moffitt hospital, Mission Bay or Mt. Zion hospital department of interventional radiology.

14.8 Describe the resources in place to conduct this study in a way that assures protection of the rights and welfare of participants:

UCSF medical staff nurses, physicians and administrative staff involved in the standard of care procedures for patients already scheduled for IVC filter placement. 6 or greater interventional radiology physicians will also be on protocol and our trained extensively in IVC filter placement and monitoring. An independent radiologist will also be on key study staff to assist with the unbiased imaging analysis.

In addition there is a dedicated clinical research coordinator that will facilitate patient care and contact, primary physician contact, data collection and IR staff coordination.

15.0 Alternatives

15.1 Study drug or treatment is available off-study:

- (•) Yes
- ( ) No
- ( ) Not applicable

15.2 * Is there a standard of care (SOC) or usual care that would be offered to prospective subjects at UCSF (or the study site) if they did not participate:

(•) Yes ( ) No

If yes, describe the SOC or usual care that patients would receive if they choose not to participate:

The standard of care would be for the patient to receive and IVC filter without randomization or physician questionnaires. The type of filter is determined by physician preference.

15.3 Describe other alternatives to study participation that are available to prospective subjects:

To not be randomized to either the Denali or Option Elite IVC filter. Also the physician would not complete a questionnaire about filter placement. In this case, the filter used is usually determined by physician choice.

16.0 Risks and Benefits

16.1 * Risks and discomforts:

Risk of IVC Filter Placement and Removal (Standard of Care)
-Insertion site hematoma
-Filter migration
-Filter fracture and fragment embolization
-Penetration of the vena cava by the filter legs
-Recurrent PE
-Vena cava thrombosis
-Allergic reaction to iodinated contrast agent
-Inability to remove IVC filter
-Loss of privacy due to inadvertent loss of data disclosure

16.2 Steps taken to minimize risks to subjects:

Filter removal and filter placement will be conducted by a skilled M.D. Interventional Radiologist at UCSF Mission Bay, Mt. Zion, or Moffitt hospital. All MD IR staff are extensively trained in the placement and removal of IVC filters. The primary investigator will ensure the proper training of any physician placing filters on study. Patient data will be stored in APEX per standard of care or on a secured and approved UCSF database.

All patients included in the trial will be contacted to undergo IVC filter removal in order to prevent/reduce the complications associated with long-term filter dwell time.

16.3 Benefits to subjects:

(•) Yes ( ) No

If yes, describe:

The main benefit to subjects is that they will be followed more closely than normal and study staff will be contacting them at regular intervals to ensure filter is removed as soon as it is determined to be safe for the patient. Many IVC filter patients are not contacted for follow up retrieval and are at much greater risk for complications from the filter that also increase with duration of placement within the body.

16.4 Benefits to society:

The benefit to society and the medical community is to provide additional data on the type and frequency of IVC filter complications and their time course. An additional benefit is that we are trying to improve the standard of care for IVC filter patients and ensure they are followed closely and have their filters removed as soon as it is safe to do so.

16.5 Explain why the risks to subjects are reasonable:

The risks to the subject are reasonable since these are standard of care IVC filter patients who would be having a filter placed whether or not they agreed to participate in the study. There may be additional risks discovered during the course of the study showing that one device may be safer than the other. This is necessary in order to provide further safety data on both devices. If any serious risks or complications come up during the study with either device, we will notify IRB as required and consider modifying the study.

17.0 Data and Safety Monitoring Plan

17.1 Describe the plan for monitoring data and safety (Help Text updated 9/13):

DATA SAFETY MONITORING

Because this is a standard of care observational prospective study on two FDA approved and commonly used devices, our data and safety monitoring plan will primarily consist of the standard monitoring of patients during and after any clinical procedure conducted by interventional radiology.

ADVERSE EVENTS
During the study, site personnel will note any change in the condition(s) and the occurrence and nature of any adverse events. For 30 days after removal of IVC filter, patients will be followed for any adverse event that could be related to the IVC filter or removal.

FOLLOW-UP OF PATIENTS AFTER ADVERSE EVENTS

Investigator Follow-Up:
The investigator should follow all unresolved adverse events if attributed to the IVC filter device until the event has resolved to baseline grade or better, the event is assessed as stable by the investigator, new therapy is initiated, the patient is lost to follow-up, or the patient withdraws consent. Every effort should be made to follow all serious adverse events considered to be related to trial-related procedures until a final outcome can be reported.

During the study period, resolution of adverse events (with dates) should be documented on the Adverse Event CRF and in the patient's medical record to facilitate source data verification (SDV). If, after follow-up, return to baseline status or stabilization cannot be established, an explanation should be recorded on the Adverse Event CRF.

DATA REVIEW

Investigators will conduct continuous review of data from UCSF enrolled patient safety at monthly research study group or site committee meetings where the results of each patient's treatment are discussed. The discussion will include the number of patients, complications as described in the protocol, and observed responses.

WITHDRAWAL
Discontinuation of Patients:
The investigator will discontinue patients from the study in the following circumstances:

- Patient is not a candidate for IVC filter retrieval to do continuing embolism risk or declining overall health status
- The patient or attending physician requests withdrawal of the patient from the study.
- The investigator stops the study or stops the patient's participation in the study for medical, safety, regulatory, or other reasons consistent with applicable laws, regulations, and good clinical practice (GCP).
- The patient is noncompliant with study procedures.

When a subject withdraws before completing the study, the reason for withdrawal is to be documented whenever known.

DSMB/DMC

A DSMB will not be utilized for the study as this is a Phase IV standard of care study on two FDA approved devices with clearly defined safety and efficacy monitoring procedures per standard clinical care. All adverse events will be reported to IRB, and other applicable regulatory agencies.

17.2 This study requires a Data and Safety Monitoring Board:

- ○ Yes
- ◉ No or not sure

If **yes**, press **SAVE and CONTINUE** to move to the next section of the application.

17.3 If No, provide rationale:

- ○ Social/Behavioral research
- ○ Phase I trial
- ○ Treatment IND/Compassionate Use Trial
- ◉ Other (explain below)

If **Other,** explain:

This is a standard of care observational study of two commonly used FDA approved devices. We will discuss cases at monthly research meetings and propose changes to procedures or protocol as needed if investigators determine there are risks or adverse events directly related to the study, or if new and potentially hazardous findings are found attributable to the approved devices.

18.0 Confidentiality and Privacy

18.1 Plans for maintaining privacy in the research setting:

Data are coded. A subject's protected health information (PHI) is not located on any data collection documents nor is it kept with data. Physical data are kept in locked file cabinets while electronic data are password protected and maintained on a secure network or on a password encrypted hard drive . A data key linking the subject's personal information to their study code is kept securely with access limited to staff designated by the PI.

18.2 Possible consequences to subjects resulting from a loss of privacy:

In the rare case of an abnormal finding obtained by this study, subjects and their healthcare providers may become aware of a previously unknown medical condition. This could affect their insurability.

18.3 Study data are:

- ☐ Derived from the Integrated Data Repository (IDR) or The Health Record Data Service (THREDS) at SFGH
- ☑ Derived from a medical record (e.g. APeX, OnCore, etc. Identify source below)
- ☑ Added to the hospital or clinical medical record
- ☑ Created or collected as part of health care
- ☑ Used to make health care decisions
- ☐ Obtained from the subject, including interviews, questionnaires
- ☐ Obtained from a foreign country or countries only
- ☐ Obtained from records open to the public
- ☐ Obtained from existing research records
- ☐ None of the above

If **derived from a medical record**, identify source:

all available patient medical records (paper and electronic)

18.4 Identifiers may be included in research records:

◉ Yes ○ No

If **yes**, check all the identifiers that may be included:

- ☑ Names
- ☑ Dates
- ☐ Postal addresses
- ☑ Phone numbers
- ☐ Fax numbers
- ☐ Email addresses
- ☐ Social Security Numbers*
- ☑ Medical record numbers
- ☐ Health plan numbers
- ☐ Account numbers
- ☐ License or certificate numbers
- ☐ Vehicle ID numbers
- ☐ Device identifiers or serial numbers
- ☐ Web URLs
- ☐ IP address numbers
- ☐ Biometric identifiers
- ☐ Facial photos or other identifiable images
- ☐ Any other unique identifier

* Required for studies conducted at the VAMC

18.5 Identifiable information might be disclosed as part of study activities:

◉ Yes ○ No

If **yes**, indicate to whom identifiable information may be disclosed:

- ☑ The subject's medical record

- [ ] The study sponsor
- [ ] Collaborators
- [x] The US Food & Drug Administration (FDA)
- [ ] Others (specify below)
- [ ] A Foreign Country or Countries (specify below)

If **Others**, specify:

18.6 Indicate how data are kept secure and protected from improper use and disclosure (check all that apply): NOTE: Whenever possible, do not store subject identifiers on laptops, PDAs, or other portable devices. If you collect subject identifiers on portable devices, you MUST encrypt the devices.

- [ ] Data are stored securely in My Research
- [ ] Data are coded; data key is destroyed at end of study
- [x] Data are coded; data key is kept separately and securely
- [x] Data are kept in a locked file cabinet
- [x] Data are kept in a locked office or suite
- [x] Electronic data are protected with a password
- [x] Data are stored on a secure network
- [ ] Data are collected/stored using REDCap or REDCap Survey
- [ ] Data are securely stored in OnCore

18.7 Additional measures to assure confidentiality and protect identifiers from improper use and disclosure, if any:

All study data will be identified by a unique code number. The link to subject identifiers will be available only to study investigators and staff and used on an as-needed basis.

18.8 This study may collect information that State or Federal law requires to be reported to other officials or ethically requires action:

○ Yes ◉ No

Explain:

18.9 This study will be issued a Certificate of Confidentiality:

○ Yes ◉ No

19.0 Subjects

19.1 Check all types of subjects that may be enrolled:

- [x] Inpatients
- [x] Outpatients
- [ ] Healthy volunteers
- [ ] Staff of UCSF or affiliated institutions

19.2 Additional vulnerable populations:

- [ ] Children

- [x] Subjects unable to consent for themselves
- [x] Subjects unable to consent for themselves (emergency setting)
- [x] Subjects with diminished capacity to consent
- [x] Subjects unable to read, speak or understand English
- [ ] Pregnant women
- [ ] Fetuses
- [ ] Neonates
- [ ] Prisoners
- [ ] Economically or educationally disadvantaged persons
- [ ] Investigators' staff
- [ ] Students

Explain why it is appropriate to include the types of subjects checked above in this particular study:

Many patients who are sent for IVC filter placement have experienced a medical emergency or significant trauma that may preclude from giving full informed consent. In this case, an authorized representative can provide consent. Also there are many patients who do not speak english at UCSF who can be consented through an interpreter if necessary. Since this is primarily an observational study, this does not place undue burden or risk on the patients. This is especially true as all procedures are conducted as part of standard of care.

Describe the additional safeguards that have been included in the study to protect the rights and welfare of these subjects and minimize coercion or undue influence:

Since we are merely looking at safety data from FDA approved devices commonly used in IVC filter placement as part of standard of care, patients are merely being asked if the data from their device used can be looked at.The patient or authorized representative will already be giving consent for filter placement as a medical necessity, the randomization is the only part of the study they must give consent for.

20.0 Inclusion of Non-English Speaking Subjects

20.1 Indicate which method(s) you will use to consent non-English speaking subjects:

- [ ] Preferred Method—Consent form and other study documents will be available in the subject's primary language Personnel able to discuss participation in the patient's language will be present for the consent process.
- [x] Short-Form—A qualified interpreter will translate the consent form verbally, and subjects will be given the Experimental Subject's Bill of Rights in their primary language, following instructions in Those Who do not Read, Speak or Understand English for required witnessing and signatures

20.2 Explain how you will maintain the ability to communicate with non-English speakers throughout their participation in the study:

Use of in-person interpreter and or phone-assisted interpreter will be provided, as done in standard of care. Short-form must be used because there is limited time between the decision of the patient's primary medical team to order the placement of an IVC filter and the scheduling of the procedure which is often same day or emergent.

21.0 Recruitment

21.1 * Methods (check all that apply):

- [x] Study investigators (and/or affiliated nurses or staff) recruit their own patients directly in person or by phone.
- [ ] Study investigators recruit their own patients by letter. Attach the letter for review.
- [ ] Study investigators send a "Dear Doctor" letter to colleagues asking for referrals of eligible patients. If interested, the patient will contact the PI or the PI may directly recruit the patients (with documented

permission from the patient). Investigators may give the referring physicians a study information sheet for the patients.

- ☐ Study investigators provide their colleagues with a "Dear Patient" letter describing the study. This letter can be signed by the treating physicians and would inform the patients how to contact the study investigators. The study investigators may not have access to patient names and addresses for mailing
- ☐ Advertisements, notices, and/or media used to recruit subjects. Interested subjects initiate contact with study investigators. Attach ads, notices, or media text for review. In section below, please explain where ads will be posted.
- ☐ Study investigators identify prospective subjects through chart review. (Study investigators request a Waiver of Authorization for recruitment purposes.)
- ☐ Large-scale epidemiological studies and/or population-based studies: Prospective subjects are identified through a registry or medical records and contacted by someone other than their personal physician. (Study investigators request a Waiver of Authorization for recruitment purposes.)
- ☐ Direct contact of potential subjects who have previously given consent to be contacted for participation in research. Clinic or program develops a CHR-approved recruitment protocol that asks patients if they agree to be contacted for research (a recruitment database) or consent for future contact was documented using the consent form for another CHR-approved study.
- ☐ Study investigators list the study on the School of Medicine list of UCSF Clinical Trials website or a similarly managed site. Interested subjects initiate contact with investigators.
- ☐ Study investigators recruit potential subjects who are unknown to them through methods such as snowball sampling, direct approach, use of social networks, and random digit dialing.
- ☐ Other

If **Other**, explain:

21.2 * How, when, and by whom eligibility will be determined:

All patients referred for IVC filter placement procedure are initially eligible. Final eligibility will be determined by interventional radiology attending physicians who are listed on the protocol as key study personnel.

21.3 * How, when, where and by whom potential subjects will be approached:

Before the procedure, physicians in Interventional Radiology scheduled to do a consultation for a IVC filter placement will ask patients if they wish to participate in the observational study and consent them just as they would for the procedure consent.

21.4 * Protected health information (PHI) will be accessed prior to obtaining consent:

◉ Yes ○ No

22.0 Waiver of Consent/Authorization for Recruitment Purposes

This section is required when study investigators (and/or affiliated nurses or staff) recruit their own patients directly.

22.1 * Study personnel need to access protected health information (PHI) during the recruitment process and it is not practicable to obtain informed consent until potential subjects have been identified:

◉ Yes

If **no**, a waiver of consent/authorization is NOT needed.

22.2 * A waiver for screening of health records to identify potential subjects poses no more than minimal risk to privacy for participants:

◉ Yes

If **no**, a waiver of authorization can NOT be granted.

22.3 * Screening health records prior to obtaining consent will not adversely affect subjects' rights and welfare:

◉ Yes

If **no**, a waiver of authorization can NOT be granted.

22.4 * Check all the identifiers that will be collected prior to obtaining informed consent:

- ☑ Names
- ☑ Dates
- ☐ Postal addresses
- ☐ Phone numbers
- ☐ Fax numbers
- ☐ Email addresses
- ☐ Social Security Numbers*
- ☑ Medical record numbers
- ☐ Health plan numbers
- ☐ Account numbers
- ☐ License or certificate numbers
- ☐ Vehicle ID numbers
- ☐ Device identifiers or serial numbers
- ☐ Web URLs
- ☐ IP address numbers
- ☐ Biometric identifiers
- ☐ Facial photos or other identifiable images
- ☐ Any other unique identifier
- ☐ None

Note: HIPAA rules require that you collect the minimum necessary.

22.5 * Describe any health information that will be collected prior to obtaining informed consent:

In order to determine if the patient is a candidate for IVC filter placement, a chart review will be performed by the MD as standard of care. This information will be available during the informed consent. Therefore, nothing outside of necessary health information per standard of care will be obtained.

Note: HIPAA requires that you collect the minimum necessary.

22.6 * Describe your plan to destroy the identifiers at the earliest opportunity consistent with the research or provide a health or research justification for retaining the identifiers, or indicate and explain that retention is required by law:

Any PHI that is accessed prior to obtaining informed consent will not be recorded outside of the existing patient medical record. Only after a patient has been consented will any PHI data be recorded in study records.

23.0 Informed Consent

23.1 * Methods (check all that apply):

- [x] Signed consent will be obtained from subjects and/or parents (if subjects are minors)
- [ ] Verbal consent will be obtained from subjects using an information sheet or script
- [ ] Electronic consent will be obtained from subjects via the web or email
- [ ] Implied consent will be obtained via mail, the web or email
- [x] Signed consent will be obtained from surrogates
- [ ] Emergency waiver of consent is being requested for subjects unable to provide consent
- [ ] Informed consent will not be obtained

23.2 * Process for obtaining informed consent:

Subjects will sign the ICF and HIPAA authorization at the same time they are giving consent for the interventional IVC filter placement procedure.

23.3 * How investigators will make sure subjects understand the information provided to them:

The study will be explained to the patient, surrogate, or interpreter in detail by the physician performing the procedure. The physician will also asked detailed questions of the patient or surrogate, with or without an interpreter, to make sure all study procedures are understood. There will also be an opportunity to ask questions and the patient will be informed that they can change their mind and withdraw consent at any point without consequences to their care or health benefits at UCSF.

24.0 Surrogate Consent

24.1 Subjects are inpatients on a psychiatric ward or mental health facility, or on psychiatric hold:

- (•) No

If **yes**, use of surrogate consent for research is NOT allowed in California.

24.2 This study is related to the cognitive impairment, lack of capacity, or serious or life-threatening diseases and conditions of the research subjects:

- ( ) Yes

If **no**, use of surrogate consent for research is NOT allowed in California.

24.3 Explain why use of surrogates is necessary for completion of this study:

Many patients scheduled for IVC filter placement are experiencing emergency situations and may not be able to consent for themselves until after the procedure.

24.4 Plans for assessing the decision-making capacity of prospective subjects:

Whether the patient is conscious, and whether the patient has a documented dementia or mental impairment.

24.5 Plans for obtaining consent from subjects who regain ability to consent after a surrogate has given initial consent:

After the procedure and if the patient has recovered to a level capable of giving consent, we will explain the study and ensure the patient still wishes to proceed with the research. If the patient disagrees with the decision of the surrogate, we will discontinue all further data collection efforts from that point forward.

24.6 Requirements for any study involving surrogates for obtaining informed consent. Check to

acknowledge:

- [x] Research takes place in California. All surrogates will complete the "Self-Certification of Surrogate Decision Makers for Participation in Research" form.
- [x] Conscious subjects will be notified of the decision to contact a surrogate. If subjects object to study participation, they will be excluded even if their surrogate has given consent.
- [x] Surrogates will not receive any financial compensation for providing consent.
- [x] If a higher-ranking surrogate is identified at any time, the investigators will defer to the higher-ranking surrogate's decision regarding the subject's participation in the research.

For research taking place outside of California, explain how investigators will confirm that surrogates are legally authorized representatives:

24.7 VA Studies Only
Provide any additional information to explain comply with the additional VAMC requirements for use of surrogates in research:

25.0 Financial Considerations

25.1 Subjects payment or compensation method (check all that apply):

Payments will be (check all that apply):

- [x] Subjects will not be paid
- [ ] Cash
- [ ] Check
- [ ] Debit card
- [ ] Gift card
- [ ] Reimbursement for parking and other expenses
- [ ] Other:

Specify **Other**:

25.2 Describe the schedule and amounts of payments, including the total subjects can receive for completing the study. If deviating from recommendations in Subject Payment Guidelines, include specific justification below.

25.3 Costs to Subjects: Will subjects or their insurance be charged for any study procedures?

(•) Yes ( ) No

If **yes,** describe those costs below, and compare subjects' costs to the costs associated with alternative care off-study. Finally, explain why it is appropriate to charge those costs to the subjects.

Subjects or their insurance will be charged for all procedures as normal since all patient involved procedures are part of standard of care.

26.0 CTSI Screening Questions

26.1 * This study will be carried out at one of the UCSF Clinical Research Services (CRS) centers or will utilize CRS services. CRS centers are at the following sites:

- **SFGH Clinical Research Center**
- **Moffitt Adult Clinical Research Center**

- **Moffitt Hospital Pediatrics & NCRC**
- **Mount Zion Hospital Clinical Research Center**
- **Tenderloin Center**
- **CHORI Children's Hospital Pediatrics & Adult Clinical Research Center**
- **Kaiser Oakland Research Unit**
- **SF VA Medical Center Clinical Research Unit**

Please note: Effective 3/1/14, the CRS form will no longer be completed and submitted in iRIS. The CRS budget request form can be found at: https://accelerate.ucsf.edu/files/crs/BudgetRequest2015.docx. Follow the instructions on the form to submit. Even if you click 'Yes' to this question, the form will no longer proceed to the Clinical Research Services (CRS) Application Form section.

○ Yes ◉ No

26.2 This project involves community-based research:

○ Yes ◉ No

26.3 This project involves practice-based research:

○ Yes ◉ No

27.0 End of Study Application

27.1 **End of Study Application Form** **To continue working on the Study Application: Click on the section you need to edit in the left-hand menu. Remember to save through the entire Study Application after making changes. If you are done working on the Study Application: Click Save and Continue. If this is a new study, you will automatically enter the Initial Review Submission Packet form, where you can attach consent forms or other study documents. Review the Initial Review Submission Checklist for a list of required attachments. Answer all questions and attach all required documents to speed up your approval.**

University of California San Francisco

Human Research Protection Program
Committee on Human Research

Notification of Expedited Review Approval

Principal Investigator
Maureen P Kohi

Co-Principal Investigator

Type of Submission: Modification Form
Study Title: Prospective Randomized Evaluation of the Denali and Option Inferior Vena Cava Filters

IRB #: 14-13307
Reference #: 133668

Committee of Record: San Francisco General Hospital Panel

Study Risk Assignment: Greater than minimal

Approval Date: 03/23/2015 **Expiration Date:**

All changes to a study must receive CHR approval before they are implemented. Follow the modification request instructions. The only exception to the requirement for prior CHR review and approval is when the changes are necessary to eliminate apparent immediate hazards to the subject (45 CFR 46.103.b.4, 21 CFR 56.108.a). In such cases, report the actions taken by following these instructions.

Expiration Notice: The iRIS system will generate an email notification eight weeks prior to the expiration of this study's approval. However, it is your responsibility to ensure that an application for continuing review approval has been submitted by the required time. In addition, you are required to submit a study closeout report at the completion of the project.

Approved Documents: To obtain a list of documents that were approved with this submission, follow these steps: Go to My Studies and open the study – Click on Submissions History – Go to Completed Submissions – Locate this submission and click on the Details button to view a list of submitted documents and their outcomes.

For a list of all currently approved documents, follow these steps: Go to My Studies and open the study – Click on Informed Consent to obtain a list of approved consent documents and Other Study Documents for a list of other approved documents.

San Francisco Veterans Affairs Medical Center (SFVAMC): If the SFVAMC is engaged in this research, you must secure approval of the VA Research & Development Committee in addition to CHR approval and follow all applicable VA and other federal requirements. The CHR website has more information.